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Atypical pre-eclampsia with severe features: A case report

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Abstract

Background: Many rural areas, especially in developing world, the providers of obstetric care are either family physicians or general practitioners and most of these obstetric emergencies are seen in rural areas. Typical preeclampsia could be easily diagnosed due to it classical triad of maternal hypertension after 20 weeks and before 48 hours post-delivery, proteinuria and oedema. For atypical preeclampsia the diagnosis is usually missed due to its vague nature of presentation. The classical triad features may be absent and hence delayed in the management. Most cases of atypical preeclampsia are associated with high risk of maternal/foetal morbidity and mortality.

Objective: The purpose of this case report is to update the knowledge of health care providers on the sundry presentation of atypical preeclampsia.

Case summary: This report, describes a unique case of atypical preeclampsia, in which a normotensive primigravida at 37 weeks gestation, presented with severe headache and sudden loss of eyesight, with spot urine protein/creatinine ratio of 1.2, abnormal quadruple analytes (human chorionic gonadotrophin, alpha foetoprotein, inhibin -A and unconjugated oestriol), platelets count of 96,700 per micro litre and packed cell volume of 24%.

Conclusion: Absence of one or two of triad components should not preclude diagnosing preeclampsia, provided there are other features of organs/systems involvement.

Keywords: Atypical, Preeclampsia, Abnormal, Quadruple analytes, Sokoto

Introduction

International Society for the Study of Hypertension in Pregnancy (ISSHP), defined typical pre-eclampsia as an increased in blood pressure ($\geq$ 140mmHg systolic or $\geq$ 90 mmHg diastolic on two or more occasions at least 4hour apart) that occurred on or after 20th week of gestation in a woman with previously normal blood pressure, accompanied by proteinuria ($\geq$ 0.3g/24 h urine, $\geq$ 1+ on dipstick, random urine total protein/creatinine ratio $\geq$ 0.5) (1-5). As for atypical preeclampsia, some of these classic features may be absent (6). It may occur before 20weeks of gestation, after 48 hours postpartum, or blood pressure may be within the normal range,

or absence of protein in urine (6). It may also present with features of organ damage, like liver, brain and kidney (6,7). Other variant features of atypical preeclampsia include; magnesium sulphate therapy resistant, haemolytic anaemia, elevated liver enzymes and low platelets count (6). Most cases of atypical preeclampsia are severe and are associated with high maternal and foetal morbidity and mortality (8). The diagnosis of preeclampsia should still be made, in the absence of classical triad components, provided there is at least one of the triad components with any of the following clinical or biochemical features (4,6,9); persistent neurological type of headache, right hypochondrial tenderness, deranged liver enzymes, low platelets count, high serum creatinine (10). Preeclampsia is regarded as severe if any of the following clinical/biochemical features are present (4). Blood pressure of $\geq$ 160 mmHg systolic or $\geq$ 110 mmHg diastolic, Platelets count less than 100,000 per microlitre, serum creatinine that double the normal reference values in pregnancy, Proteinuria that is greater than 500mg/24 hour urine or spot urine total protein/ creatinine ratio $\geq$ 0.5, serum liver enzymes double it normal reference value and Utero-placental insufficiency (example foetal growth restriction, low birth weight) (10,11).

Case presentation

Here is the case report that describe clinical presentation of atypical preeclampsia of 17 years old primigravida at 37 weeks gestations. She was admitted through antenatal clinic of Maryam Abacha Women and Children Hospital Sokoto on 28th February 2019, with 5days history of persistent headache, intolerance to visual perception of light, rapid heartbeat and three hours history of sudden loss of eye sight. The pregnancy was booked at 16 weeks, and her booking blood pressure and packed cell volume then, was 90/60mmHg and 32% respectively, urinalysis: protein negative, glucose negative. The antenatal visit not adequate (had only one follow up visit at 20 weeks) and her blood pressure at that time, was still 90/60mmHg but her packed cell volume was dropped to 28%. No history of head injury, but there is family history of preeclampsia (her mother).

On physical examination patient was crying, afebrile (37.6°C), pale, acyanosed, anicteric, not dehydrated and with mild bilateral ankle oedema. The blood pressure was 100/60mmHg, pulse rate was 118 beats per minute, weight was 84kg, height was 1.58 m and body mass index was 33.6 kg/m^2.

Eye examination: she had perception of light only. Had exaggerated tendon reflex. On abdominal examination, found gravid abdomen that moved with respiration, symphysio - fundal height was 37.5 centimeters, longitudinal lie and cephalic presentation. Foetal heart sound present (127 beats per minute).

Laboratory findings: The remarkable findings were those of alpha foeto-protein of 386.5 ng/ml, beta-human chorionic gonadotrophin 520,000 mIU/ml, Inhibin-A 168.5 pg/ml and unconjugated oestriol of 9.2 mmol/ml (Table 1). Other findings included spot urinary total protein /creatinine ratio: 1.2, haemoglobin concentrations: 7.2 g/dl, packed cell volume 24%, serum creatinine: 1.9mg/dl and platelet counts: 96,700 per micro litre). Other biochemical findings were unremarkable and included random blood glucose: 5.4 mmol/l, Aspartate amino transferase: 6.2 U/L , Alanine transaminase: 5 U/L, Alkaline phosphatase: 134 U/L, albumin: 3.7 g/dl, total protein: 6.8 g/dl, bilirubin: 0.4mg/ml, sodium:137mmol/l, potassium: 2.7mmol/l, chloride:107mmol/l, bicarbonate: 24 mmol/l, and urea: 5.8 mmol/l.

Table 1: The quadruple analytes values of the patients and reference range at third trimester.

Parameters	Values of patient	Reference range
AFP	386.5ng/ml	93-321ng/ml
ß-HCG	520,000mIU/ml	3,640-117,000mIU/ml
INH-A	168.5pg/ml	39-63pg/ml
uE3	9.2mmol/ml	18 20mmol/ml

APF=Alpha foeto protein, β-HCG= Beta human chorionic gonadotrophins, INH-A = Inhibin A and uE3= unconjugated oestradiol.

Obstetrics ultrasound findings: singleton intrauterine foetus, longitudinal lie, cephalic presentation at gestational age 37 weeks and 5 days with cystitis.

Based on the findings a diagnosis of atypical preeclampsia with severe anaemia and thrombocytopenia was made.

Two pints of fresh whole blood were transfused within 8 hours of admission. A loading dose of 4-gram magnesium sulphate diluted in 250mls normal saline was administered slowly over 20 minutes, subsequently 2g 4hourly for 24hours, and intravenous ceftriaxone 1g 12hourly for 48 hours.

Six hours post commencement of treatment, the blood pressure was measured and it was 100/60 mmHg. Same time, she started to regain her eye sight, headache and palpitation started to subside. Funduscopic examination was done at about 18 hours on admission and the findings were all normal.

On the third day of admission, the labour started spontaneously (at 38weeks and1day) and the patient delivered a baby boy weighing 2300 grams with Apgar scores of 5 and 6 at 1st and 5th minute respectively. A retro placental clot was seen (Figure 1), an evidence of concealed placental abruption. By fourth day of admission, she already regained her full eye sight, headache and palpitation also subsided. The blood pressure was 100/70mmHg, post-transfusion packed cell volume was 27% and she was transfused with an additional one pint of fresh whole blood.

The patient was discharged on the eighth day of admission with a packed cell volume and platelets count of 30% and 106,300 per micro litre respectively. She was placed on double dose haematinics and was to be seen in the clinic in two weeks.

At two weeks post discharge follow up visit; her blood pressure was 100/70 mmHg; platelets count was 112,000 per micro litre and packed cell volume was 32%.

Figure 1: Retroplacental clot seen in the case

Discussion

In classical preeclampsia, the patient usually presents with increased in blood pressure (≥ 140 mmHg systolic or 90mmHg diastolic on two or more occasions at least 4 hours apart) that occur on or after the 20th week of gestation and up to 48hours post-delivery, in a woman with previously normal blood pressure, accompanied by proteinuria (≥ 0.3g/24hrs urine, ≥ 1+ on dipstick or spot urine protein/creatinine ratio ≥ 0.3) (4). For non-classical (atypical) preeclampsia, the pattern of presentation is vague, such that it may occur in normotensive women, in the absence of proteinuria or occur before 20th weeks of gestation or 48 hours post-delivery (4). Other variant features of preeclampsia include

resistance to magnesium sulphate therapy, haemolytic-anaemia, elevated liver enzymes, low platelets count and amnesia (6, 12).

In this case study, although the blood pressure was normal (90/60 mmHg),but there was a mild oedema confined to the ankles and massive proteinuria (spot urine total protein/creatinine ratio of 1.2 which is equivalent about 1200mg/24 hour urine), and one of the biochemical criteria for severe preeclampsia is spot urine total protein /creatinine ratio of $\geq$ 0.5 or greater 500mg/24 hours urine. In this patient, the spot urinary protein/creatinine ratio was 1.2 which is really quite high (6, 13, 14). Platelets count less than 100,000 per microlitre is regarded as severe, in this case the value for platelets count was 96,700 per microlitre, which is less than cut off value, hence its severe (4-6).

Quadruple analytes test is a maternal blood test that screens for four specific biomarkers, namely; alpha-foetoprotein (AFP), beta-human chorionic gonadotrophin (β-HCG), unconjugated oestriol (uE3), and inhibin-A (INH-A) (7-9). In the early 1980s, maternal serum quadruple analytes test was used to detect foetus with chromosomal aneuploidy and structural malformation (7). In recent years, its uses have extended to predicting other adverse outcomes in both mothers and foetuses. These adverse outcomes include preeclampsia, placental abruption, low birth weight, preterm birth among others (7, 15, 16). The reference value of AFP, HCG and INH-A at third trimester were 93-321 ng/ml, 3,640 - 117,000mIU/ml, and 39 - 63 pg/ml respectively (17,18) greater than the upper limit of reference range for gestational age is consider high and such individual is at risk of adverse pregnancy like preeclampsia, low birth weight, placental abruption (7-13). In this case, the values for quadruple analytes (Alpha foeto protein of 386.5 ng/ml, beta-human chorionic gonadotrophin 520,000 mIU/ml, Inhibin-A 168.5 pg/ml, were obtained which greater than the upper limit of reference value for that gestational age, as such is at risk of adverse pregnancy (10). Conversely, a decreased in unconjugated oestriol less the lower limit of reference is at risk of adverse pregnancy particularly preeclampsia, which exactly the case in this patient the value obtained is less than the lower limit of reference range (unconjugated oestriol was 9.2 mmol/ml) (18-20).

Similar cases were reported where some patient had only one or two triad components of preeclampsia with organs involvement (4-7). Normally, preeclampsia first involves the arteries and the kidney manifesting as hypertension and proteinuria respectively, before other organs /systems involvement. In atypical preeclampsia, organs/systems (such as cerebrum, bone marrow and liver) involvement can occurs prior to hypertension or proteinuria (5, 7), just like in this case patient had neurological involvement without hypertension. This shows that clinical features of organs/systems involvement should be looked for vigilantly in the absence of hypertension or proteinuria in suspicious cases preeclampsia (18). Family first degree history of preeclampsia, obesity (body mass index > 30kg/m^2), primigravida are some of the high-risk factors for preeclampsia and all these risk factors are present in this patient (19). Pre-eclampsia is one the risk factors for placental abruption, and placental abruption is associated with poor neonatal outcome like low birth weight, foetal growth restriction, foetal distress and even death (8,20).

Conclusion and recommendation

Absence of one or two of triad components should not preclude diagnosing preeclampsia, provided there are other features of organs/systems involvement.

Pregnant women with high risk factors for preeclampsia, should book pregnancy early and

should have short antenatal visit appointment for proper monitoring of possible organs/system involvement.

Limitation: Computed tomography scan should have been done to rule other causes of sudden loss of eye sight.

Placental tissue biopsy should have been done to determine the placental histopathological changes seen in pre-eclampsia.

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